

**REMARKS**

Claims 1-32 are pending in the present application. Reconsideration of the application is respectfully requested in view of the following responsive remarks. For the Examiner's convenience and reference, Applicant's remarks are presented in the order in which the corresponding issues were raised in the Office Action.

In the office action of December 27, 2006, the following actions were taken:

(1) Claims 1-32 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,557,989 to Hiroswawa et al. (hereinafter "Hiroswawa") in view of PCT Application Publication No. WO 00/37258 of Lavery et al. (hereinafter "Lavery.")

It is respectfully submitted that the presently pending claims be examined and allowed. Applicants submit that each and every amendment presented throughout the prosecution of the present application is fully supported by the specification as originally filed, and that no new matter has been added.

**Rejections Under 35 U.S.C. § 103**

The Examiner has rejected claims 1-32 as being obvious over Hiroswawa in view of Lavery. In order to maintain a *prima facie* case of obviousness by combining references, the prior art must provide some reason or motivation to make the claimed compositions. *In re Dillon*, 16 U.S.P.Q.2d 1897, 1901 (Fed. Cir. 1990). As aptly stated in *In re Jones*, 21 U.S.P.Q.2d 1941, 1943-44 (Fed. Cir. 1992):

"Before the PTO may combine the disclosure of two or more prior art references in order to establish *prima facie* obviousness, there must be some suggestion for doing so, found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art... Conspicuously missing from this record is any *evidence*, other than the PTO's speculation (if it be called evidence) that one of ordinary skill in the...art would have been motivated to make the modifications of the prior art necessary to arrive at the claimed (invention)."

An excellent summary of how the prior art must be considered to make a case of *prima facie* obviousness is contained in *In re Ehrreich et al.*, 220 U.S.P.Q. 504, 509-511 (CCPA 1979). There the court states that a reference must not be considered

in a vacuum, but against the background of the other references of record. It is stated that the question of a § 103 case is what the reference(s) would "collectively suggest" to one of ordinary skill in the art. However, the court specifically cautioned that the Examiner must consider the entirety of the disclosure made by the reference and avoid combining them indiscriminately.

In finding that the "subject matter as a whole" would not have been obvious in *Ehrreich* the court concluded:

"Thus, we are directed to no combination of prior art references which would have rendered the claimed subject matter as a whole obvious to one of ordinary skill in the art at the time the invention was made. The PTO has not shown the existence of all the claimed limitations in the prior art or any suggestion leading to their combination in the manner claimed by applicants." (underlining added)

It has been widely recognized that virtually every invention is a combination of elements and that most, if not all, of these will be found somewhere in an examination of the prior art. This reasoning lead the court, in *Connell v. Sears, Roebuck & Co.*, 220 U.S.P.Q. 193, 199 (Fed. Cir. 1983) to state:

"...it is common to find elements or features somewhere in the prior art. Moreover, most if not all elements perform their ordained and expected function. The test is whether the claimed invention as a whole, in light of all the teachings of the references in their entireties, would have been obvious to one of ordinary skill in the art at the time the invention was made." (underlining added)

*In re Sernaker*, 217 U.S.P.Q. 1, 5-6, (Fed. Cir. 1983) states a test to determine whether a rejection of an invention based on a combination of prior art elements is appropriate as follows:

"The lesson of this case appears to be that prior art references in combination do not make an invention obvious unless something in the prior art references would suggest the advantage to be derived from combining their teachings...The board never showed how the teaching of the prior art could be combined to make the invention." (underlining added)

Moreover, in *In re Dow Chemical Co.*, 5 U.S.P.Q.2d 1529, (Fed. Cir. 1988), the court states that both the suggestion and the expectation of success must be

founded in the prior art, not in the applicants disclosure. The Federal Circuit stated in *In re Carroll*, 202 U.S.P.Q. 571, 572 (Fed. Cir. 1979):

One of the more difficult aspects of resolving questions of non-obviousness is the necessity "to guard against slipping into use of hindsight (citing *Graham v. Deere*). Many inventions may seem obvious to everyone after they have been made...(citation of §103)...Thus, in deciding the issue of obviousness, we must look at the prior art presented from a vantage point in time prior to when the invention was made, and through the eyes of a hypothetical person of ordinary skill in the art.

With the above background in mind, Applicants contend that the Examiner has failed to meet its burden of making a *prima facie* case of obviousness. The Examiner has failed to show that the cited references provide sufficient teachings or motivation to combine in order to arrive at Applicant's invention. Further, Applicant contends that the combination of references is based on hindsight. Therefore, without knowledge of the disclosure of the present invention, one of ordinary skill in the art would not be able to make the combinations proposed to arrive at the claimed invention.

*Hirosawa in view of Lavery*

Applicant submits that the claims are patentable over Hirosawa in view of Lavery because these references—alone and in combination—fail to teach or suggest each and every element of the present invention. Furthermore, there is no motivation found in the references to combine them to yield the present invention. Finally, even if combined, there is no reasonable expectation of success arising from such a combination without the teachings of the present disclosure.

The present invention provides devices and methods for printing on print media, comprising an orifice plate having at least two orifices where at least one prints a first reactive ink and at least one other prints a second reactive ink or fixer. Further, the two printed substances react to produce a solid precipitate that is redispersable or redissolvable in at least one of the fluid substances.

Neither Hirosawa or Lavery teach or suggest a single orifice plate from which two different mutually reactive substances are to be printed. Hirosawa is directed primarily to a print head and ink-jet printing apparatus. This case is primarily a mechanical invention that addresses issues related to ink refill and pressure issues.

Hirosawa discusses increasing the number of ink ejection openings in an ink-jet print head and accordingly adjusting ink refill so as to provide fast-response capability and ejection performance. Hirosawa shows an embodiment including six ejection openings along a single orifice plate, each opening corresponding to one of six color inks. While Hirosawa teaches a plate having a plurality of orifice rows, that reference does not teach or suggest printing of two different reactive inks from the same plate. Rather, Hirosawa is directed at printing the same type of ink from each row, where each row is dedicated to printing a different color. Col. 19, lines 40-44; col 20, lines 17-20. Reaction of the different inks—either with or without use of a fixer—is not contemplated in Hirosawa, as this would interfere with accurate color printing and would likely result in clogging of the print head. To the extent that Hirosawa does mention jetting a fixer, it does not teach printing it from the same orifice plate as another reactive ink. Rather, it is printed from a dedicated binder print head onto already printed ink.

Lavery also fails to teach the printing of two reactive inks from one orifice plate. Lavery describes an ink-jet printing process that includes applying an image on a substrate by overprinting, underprinting, or simultaneously printing a binder and a polymeric biguanide of a specific chemical formula. To the extent that Lavery discusses simultaneous printing of polymeric biguanide with ink, they are printed from separate pens. Pg. 5, line 36 to pg. 6, line 1. Such an arrangement is in fact to be expected in the prior art, because of the problem of cross-contamination of the fluids and clogging of the print head that one would expect to result from printing two or more reactive substances from the same print head.

Also, neither Hirosawa nor Lavery teaches of a single orifice plate from which a combination of inks are to be jetted that form a precipitate that is redissolvable or redispersable in one of the inks. As is clear from Applicants' specification, not all combinations of inks will produce such a result. See, e.g. Examples 1 and 2. That is, even where two or more inks utilized will react to produce a precipitate, that precipitate will not necessarily be redissolvable or redispersable in one of the inks. Therefore, a general teaching about inks and/or fixers such as that in the cited references is not sufficient to teach the combination required by the present invention. Rather, a further inventive step is required beyond the teaching of Hirosawa and

Lavery to arrive at the present invention. As such, Applicants reiterate that Hirosawa and Lavery fail to teach or suggest each and every element of the present invention.

Furthermore, Hirosawa and Lavery fail to provide a motivation to combine or modify them so as to arrive at the present invention. Even if combined, there is no reasonable expectation of success arising from such a combination of these references without relying on the teaching of the present disclosure. As discussed above, neither Hirosawa nor Lavery teach printing two or more mutually reactive inks from a single orifice plate. In fact, attempting such an approach based on the combination of Hirosawa and Lavery would likely result in the orifice plate becoming clogged due to cross-contamination of the inks on the plate. One skilled in the art would therefore not find a motivation in these references to attempt such a combination. Indeed, when they do refer to printing reactive substances such as fixer, both Hirosawa and Lavery teach doing so with a print head dedicated to such a substance. Even if one skilled in the art were to proceed in spite of this teaching, one would not expect to achieve success based on Hirosawa and Lavery. In fact, without the Applicants' disclosure of the careful selection of components and matching of inks and reactants that can actually reduce clogging when printed from a single orifice plate, combining Hirosawa and Lavery would yield unsatisfactory or inoperable arrangements. However, it is well established that the expectation that a proposed combination of prior art will succeed cannot be based in the Applicants' disclosure. Applicants submit that the Examiner's rejection of these claims based on Hirosawa and Lavery is improper, as it requires the further inventive step provided by the Applicants' disclosure.


**CONCLUSION**

In view of the foregoing, Applicants believe that claims 1-32 present allowable subject matter and allowance is respectfully requested. If any impediment to the allowance of these claims remains after consideration of the above remarks, and such impediment could be removed during a telephone interview, the Examiner is invited to telephone W. Bradley Haymond (Registration No. 35,186) at (541) 715-0159 so that such issues may be resolved as expeditiously as possible.

Please charge any additional fees except for Issue Fee or credit any overpayment to Deposit Account No. 08-2025.

Dated this 27<sup>th</sup> day of March, 2007.

Respectfully submitted,



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